

Curriculum and Technology

(EDC 665) with Mercedes Fisher, Ph.D.

revised 01/06/02

PLEASE NOTE: It is suggested that you periodically check this site for revisions.

Course Goals

This course focuses on the role of technology in curricula. Students examine existing and cutting-edge technology tools in light of their relevance to and role in supporting K-12 or higher education curricula with a particular emphasis in three areas:

1. An Instructor's Perspective: Evaluation and Assessment of Electronic Resources
2. Resource planning and decision-making, and
3. Case study analyses of technology integration in the workplace

Book List

Required

- *Understanding by Design* by Grant Wiggins; Jay McTighe: Association for Supervision & Curriculum and Technology
- *Instructional Design Theories and Model: New Paradigm of Instructional Design* by C. Reigeluth; Lawrence Earlbaum Assoc. ISBN: 0805828591
- *Who Learns What From Cases and How?* By Mary Lundeborg; Lawrence Earlbaum Associates

Optional

- Books Students may choose one of the optional books below based on their work or interest level:

K-12 Books

- *Learning in Overdrive: Designing Curriculum, Instruction, and Assessment form Standard: A Manual for Teachers* by R. Mitchell; North Amercing Press
- *Standards for our Schools: How to Set Them, Measure Them, and Reach Them* by Tucker; Jossey Bas

Business and Higher Ed. Students

- *The Web Learning Fieldbook: Using the World Wide Web to Build Workplace Environments* by Valorie Beer; Jossey Bass
See the web site at:
<http://www.pfeiffer.com/beer.html>
- *Technology-Based Training: The Art and Science of Design, Development and Delivery* by K. Kruse & J. Keil

Additional Resources

See Additional Resources page for links to further information.

Small Project

Choose one of the following projects, which will constitute 30% of your total grade:

I. Curriculum Brainstorm

I want you to spend 1-3 hours (don't spend much time on this) all alone brainstorming all the possible ways you could use critical and creative thinking and motivational techniques and cooperative learning with technology in your job setting (page 1). After we share some of your ideas in class, you will spend more time personally ranking these ideas and reconfiguring your original 3-4 lists. For example, you might sort your ideas into categories or prioritizations that are useful to you this coming year (page 2). Next, I want you to reflect and jot down notes on this list and how it changed (page 3). I will give feedback on this three-page (single-spaced) assignment related to your creativity, coherent reflection, and practical relevance.

II. Presentation/Description of Curriculum or Workshop Idea

This can be part of a group collaboration or individually. The assignment is the development of a curriculum idea or workshop on critical or creative thinking, motivation, or cooperative learning for an content area that you teach or would like to teach someday. Here, I want you to specify the materials to be learned/studied, targeted age group, learning objectives, instructional plan, time length, method(s) used and procedures, and anticipated assessment procedures (about 2-4 single spaced pages total). Note that the topic of this workshop or lesson is up to you. I would ask that you present your curriculum ideas to the class in NG via a website with at least one class handout so that

we all benefit from your efforts. During your presentation, you can be as creative as you want to be. Feedback criteria include: (1) organization of the presentation (flow, length, practiced); (2) topic stimulation (active engagement), (3) usefulness (clear, practical), (4) materials (handy, relevant, informative, websites(s) provided), (5) knowledge of the topic (expertise, good ideas, insights), (6) curriculum impact (important, appropriate, significant undertaking, doable), (7) scope and plans (goals/purpose clear, audience noted, integrated), (8) effort (digging deep, extensive depth displayed here, work-work-work-work, persistence), and (9) overall holistic rating. Typically, presenters are provided with immediate feedback from other students as well as from me. This assignment is typically a highlight of the course!

III. Research Article Review

Select a research study published within the last two years that has produced evidence showing the effect of technology use on learning. Produce a review based on the following guidelines. Provide a full citation of the article following APA format. Present a brief introductory paragraph describing the article. Describe the intent of the study, the theories referred to in the review of literature, any studies mentioned in the case of secondary research, or the participants, methods, and results if the article is a report of primary research. In either case, describe the author's conclusions and primary points from the discussion section. Identify the article's strengths and weaknesses. Link to an online copy of the article (if available).

IV. Software or electronic resource evaluation

Examine criteria for evaluating software or online resources applicable to your chosen product. Suggest modifications of criteria, if appropriate. Use the criteria to evaluate the Integrated Learning System (ILS), software application, Internet-based curriculum unit, or other resource utilized in your work environment as an instructional or assessment tool. Post your review on a website and topic in the newsgroup..

V. Choose one e-mail game from below.

Facilitate the e-mail game and publish your findings via NG with URL. You can adapt the topic for the game so it relates to curriculum in your workplace.

* Notice that they are designed to facilitate creative, critical, cooperative, and motivated learning!

1001 FACTOIDS.

This e-mail game encourages players to collect, distribute, and review factual information related to any job-relevant topic (such as Singapore, where your corporation is planning to establish a local plant). During the first round, players are given the topic (Singapore) and 20 factoids (brief statements of facts) related to it, organized under 10 to 20 categories (such as geography, history, current events, cultural values, politics, famous people, ethnic groups, business practices, law, and taboos). The e-mail note also identifies different sources of information about the topic. Players are invited to contribute up to five new factoids every day before 4 p.m. at the facilitator's location. The facilitator reviews these contributions, awards 1 point for each contribution, updates a Hall of Fame list with the names of the players with the top five score, and updates the list of factoids by adding edited items. The game continues day after day with the players contributing not more than five factoids that are not currently listed in the updated list. The game is designed to last until players have identified 1001 factoids about the topic. A variation of this game, called 1001 Tips, invites players to contribute up to five tips a day for achieving a specific goal (example: having fun in the office).

CROSS SCORE.

This game requires participants to come up with short, creative answers to an open-ended question (examples: What is the single most important characteristic of a typical customer? or What business are we really in?). Before kicking off the game, the facilitator organizes players into two groups of 5-15 players and explains that members of each group will independently judge the responses of the members of the other group. During the first round, each player receives the open-ended question and a list of e-mail addresses of the members of the judging group. Each player writes a short, creative answer to the question and sends it as an e-mail note to each member of the judging group. Immediately after the deadline, each player looks at all the answers from the other team, selects the best answer and e-mails it to the facilitator. During the next round, the facilitator gives 1 point for each time an answer is selected as the best one and anonymously lists all of the answers and the scores awarded to

each. Usually, the game is repeated once a week with a new open-ended question each week.

TEAMWORK

This game is designed for virtual teams working over the Internet. The game uses an interesting scoring system that rewards individual contributions to the teams output. At the beginning of the game, players are divided into 3 to 5 teams, each with 5 to 7 members. During the first round, players are given a common planning task (example: prepare a marketing plan for the new software program) and a list of criteria. Virtual teams organize themselves in any fashion, interact through e-mail notes, and complete the task. During the second round, a panel of experts evaluates the plans from different teams and distributes 100 points among these plans to reflect their relative rating on the list of criteria. The experts also provide a brief critique of each plan. While the experts are completing their evaluation, the facilitator asks each player to send in a secret code name and a confidential recommendation for the percentages for dividing the teams score points among the other members of his or her team. The recommended percentage should be based on each players evaluation of different team members contribution to the teams plan. The facilitator computes average percentages for each player in each team. During the third round, the facilitator publishes each teams plan, the expert critique of the plan, the scores awarded to each plan, and a list of code names and individual scores (computed as the appropriate percentage of the teams score).

Case Study Analysis Final Project Part 1

Case Study Project Description

View the Evaluation Rubric Or the Sample Case Studies Assess the environment of your workplace for its effectiveness in utilization and support of technology.

This analysis should outline specific facts, problems and solutions. You should consider the following questions:

1. What is the nature of the workplace? What kind of work is done there? Who is involved?
2. What tasks in your workplace are being addressed with technology presently and how effective is the application of technology in those tasks?

3. What are the inappropriate uses of technology in your workplace? What level of support is present for technology use and what further support, if any, is required?
4. What improvements should be made?
5. Within reasonable resource limits, what tasks in your workplace should technology address in the future? As you report your analysis, refer to the readings and topics of this course, where applicable.

Recommended Format/Structure

Use APA format for citations and references. Address the questions above by structuring your analysis into these six sections:

1. Introduction and Purpose
2. Central Questions (This is the question you are asking, for example):
"Is classroom technology use at School Alpha consistent with constructivist principles and supportive of content standards?"
OR
"Is the staff development program at School Beta adequately preparing teachers to use technology effectively?"
OR
"Is technology used effectively in knowledge management and professional development at the Acme Workplace?"
3. Description of the Setting
4. Description of the Data-Gathering Process
5. Observations
6. Discussion and Conclusions

Recommended Procedure:

1. Read through at least one of the case study examples to get help you get ideas for how you would like to present your analysis.
2. Identify the subject of your study, the central question that will shape the study, and the format for its presentation in newsgroups by March 1.
3. Conduct the study and write it up. Present it in web page format. List the URL for the completed project in newsgroups. This is essential because we will be working on this project as individuals, but on the final project in small groups--depending on what you and Paul Sparks decide. Some groups will want to collaborate on creating proposals to address the case study recommendations.
4. This project is due April 15. I will give you feedback on your project by email.

Suggested Topics for Project

While many of the following could be considered as essential factors, for the purposes of this assignment, I recommend that the proposal focus on ONE topic only. Standards Curriculum (Is technology integral to the business of school or work?) Program Effects Literacy (New Literacies, New Basic Skills) Technology Planning Policies Staff Development Assessment Role of Parents Role of Community Learning Environment Infrastructure Communication Budget Reform Strategies (Murnane & Levy's 5 principles) Workplace Competencies Other As you report your analysis, incorporate the readings and topics of this course, where applicable.

Recommended Format/Structure

Use APA format for citations and references. Present your proposal in whatever format is both agreed upon by group members, and accessible by the instructor. Please include the following elements:

1. Introduction and Background: Describe the kind of proposal you're making.
2. Statement of the Problem: What is the topic? 3. Your objectives: What do you intend to accomplish in the paper?
3. Elaboration of Problem Presentation of Evidence
4. Description of "Ideal" state This is where you can refer to course materials, articles, online sources, etc.
5. Proposed strategies for addressing problem Justify your choices via reference to course materials, original data, etc.
6. Conclusions

***Class Participation**

Participation includes online discussions, newsgroup postings, email exchanges, and discussion during face-to-face meetings.

Case Study Rubric

The following measurement criteria for each rubric are listed from unsatisfactory (D grade level) to outstanding (A grade level).

I Rubric for assessing the introductory material

- There is no introduction.
- The purpose is not identified.
- The introduction is present.

- Identification of the purpose and central questions is sketchy.
- The introduction provides an adequate context for the project.
- The purpose is identified through reference to one or more central questions.
- The introduction provides a well-developed context for the project.
- The significance of central questions is illustrated by references to course materials.

II Rubric for assessing descriptions of the setting and data collection process

- The narrative contains an incomplete or vague description of the setting, and no description of the data collection process.
- The narrative contains an adequate description of the setting, but an incomplete description of the data collection process.
- The narrative contains adequate descriptions of the case study setting and the data collection process.
- The narrative contains well-developed descriptions of the setting and the data collection process (which is built upon concepts from current research, theory, and course materials).

III Rubric for assessing the record of observations

- The narrative contains observations from only one perspective, or of a single type of data.
- The narrative contains observations from at least two sources.
- The narrative contains observations from multiple sources or includes qualitative and quantitative data.
- The narrative contains observations from multiple sources, includes qualitative and quantitative data, and makes references to models of appropriate practice which are supported by current research and theory.

IV Rubric for assessing the discussion, logic, and conclusions

- The discussion is incomplete or illogical, and conclusions are missing or unrelated to the central questions.
- The discussion is adequate, but conclusions--if present--do not match the central questions.
- The discussion seems complete.

Conclusions are logical and address the central questions.

The discussion seems complete. Conclusions are logical; they address the central questions, suggest possible strategies for addressing weaknesses, and are tied to the course work.

V Rubric for assessing the presentation's clarity and style

At least three (3) of the following are true:

- The project contains multiple errors in grammar, spelling or mechanics.
- The page layout is cluttered.
- Navigation between sections is unclear.
- APA format is not used for in-text and bibliographical references to external resources.

Two (2) of the following are true:

- The project contains multiple errors in grammar, spelling or mechanics.
- The page layout is cluttered.
- Navigation between sections is unclear.
- APA format is not used for in-text and bibliographical references to external resources.

One (1) of the following is true:

- The project contains multiple or serious errors in grammar, spelling or mechanics.
- The page layout is cluttered.
- Navigation between sections is unclear.
- APA format is not used for in-text and bibliographical references to external resources.

All of the following are true:

- The project contains no serious errors in grammar, spelling or mechanics.
- The page layout facilitates understanding of the narrative.
- Navigation between sections is clear.
- APA format is used for in-text and bibliographical references to external resources. To receive an "A" on the project (> 90%), the score must be 18 points or higher. This means that a "4" or "Exemplary" must be earned in at least 3 categories, with no lower than a "3" or "Accomplished" in the remaining two.

Example Case Studies

Technology in Education Reform Case Studies from the U. S. Dept. of Ed.
Gaining the Arts Advantage Lessons from school districts that value art

education from the Presidents committee on the arts and humanities and arts education partnership. This report responds to questions posed by school and community leaders throughout the United States about public school districts that have made literacy and competence in the arts one of the fundamental purposes of schooling for all their students. Note: this case study might be particularly interesting to review because the arts can be considered to be in a somewhat similar category as technology, at least in terms of this comment from the Foreword: The "hows" that interested them [the investigators] were not only the strategies and practices regarding staffing, programs, and facilities. They were perhaps even more interested in how these districts developed and sustained arts education in the face of the enormous pressures on them to prove the success of their schools by accountability measures that focus largely on reading, math, and writing.

Learning Technologies Case Studies from Victoria, Australia. Topics include: Integrated Studies, English, Mathematics, Society & the Environment, Science, Technology, and Languages. Heriot-Watt University Case Study: Integrating TLT This case study of institutional change at Heriot-Watt University focuses on the management issues which shaped the University's approaches to staff development and structural change. Internet in the German classroom: a case study from Schools Online Application of Total Quality Management to Higher Education: A Case Study (FYI: Check the list of papers available from the 1998 HERDSA Conference in Auckland, New Zealand) Multimedia Science Projects A research study by Diane McGrath, et. al. Please note that this study was conducted over a one-and-a-half year-long period. Brief Marketing Case Studies Informal Case Study of product implementation with Recommendations for product revisions from a Curriculum Publisher

See Syllabus page

<http://moon.pepperdine.edu/%7Emmfisher/ir/665syllonlineex.html>
for links to Online Examples

Reform Proposal-Final Project Part 2

The items below refer to what was done in the past, and MAY be what we choose to do. Project Description Draft a reform strategy to address the shortcomings uncovered in one case study or common to most of the studies conducted by members of your group. This will be a collaborative project. Group members will develop the format, structure and content of the project. As part of the project, you will need to articulate project objectives. These will form the basis of the project assessment, as well as general measures of clarity, incorporation of course content, and cohesiveness. This assignment is due April 20th, 2001. Please post to NGs your URL under the Reform Strategy thread. Group Collaboration

Because the case studies conducted by group members may or may not be similar, here are some strategies to consider. The 3 Musketeers approach ("all for one and one for all") If the case studies of the group members differ widely in focus, setting, or findings, the group may single one study to address for the final project. In this situation, the other case studies are not considered in any way. The Peas in a Pod approach (compare/contrast) If the case studies of each member of the groups are similar in focus and setting, this may be the most logical approach. Groups who studied professional development at elementary schools, for example, may want to compare their findings and create a general proposal for professional development based on "typical" schools. The Frankenstein approach (eclectic) Like option B., this approach is well-suited for groups whose members studied the same topic in similar settings. In this approach, the proposal is cobbled together from successful elements observed at each site, OR in response to unsuccessful strategies observed at each site. It is possible to use this approach to create a WHAT NOT TO DO proposal. Your choice

Assignment Due Dates

At least once you will be expected to lead the TI discussion on the readings.

Each student will be expected to volunteer to lead a discussion for one class. Look at the Calendar at the right. There are 2 TI sessions for each reading pick either 6 am or 7:30 pm Pacific Time *Sign up this week in the newsgroup. Post your name Date for the discussion you will lead Time 6 am or 7:30 PM Pacific Time (whatever one you picked) I will do both of the sessions for the week of January 10th and 11th to get us started. Go to Mercedes F's office to start. Your selected small project is due February 25. Post your topic in the newsgroup by January 30. Conduct your case study of technology implementation at your school or place of business. This assignment is due April 15th, 2001.

Calendar of Assignments

January 6 - 12

Weekend in Boulder Colorado

What is Instructional-Design Theory and How is It Changing?
Volume 2, Reigluth Instructional Design Theories and Models, pg 5-30

Read and post in newsgroup.

Jan 15 & 16

Tapped In

Multiple Approaches to Understanding, pg 69-90

Teaching and Learning For Understanding, pg 99-114

Read and post in newsgroup.

Jan 22 & 23

Designing Instruction for Constructivist Learning, pg 141

Learning By Doing, pg 161-182

Toward the Development of Flexibly Adaptive Instructional Designs,
pg 183-214

Designing Constructivist Learning Environments, pg 215-240

Instructional Design: What Is It and Why is It? *Instructional Design
Theories and Model: New Paradigm of Instructional Design* by C.
Reigeluth; Lawrence Earlbaum Assoc.

- Association for Supervision and Curriculum Development has a link
and interesting information about Instructional Design ASCD
Online

Jan 29 & 30

Tapped In Review Instructional Design: What Is It and Why is It?

Post the topic for your small project in news group

Feb 5 & 6

Tapped In Motivational Design of Instruction

Collaborative Problem Solving, pg 241-268

Learning Communities in the Classroom, pg 269-292

Structured Design for Attitudinal Instruction, pg 563-290

Feb 12 & 13

No Tapped In

Understanding by Design share highlights, points of interest, etc. re: the readings in NG.

Feb 19 & 20

Tapped In Discuss Progress Towards Small Project

Friendly Reminder February 25

Small project in newsgroup [post URL] due!

Feb 26 & 27

POST CASE STUDY TOPIC in newsgroup by February 28th
[See Case Study Instructions and Evaluation Rubric]

Mar 5 & 6

Tapped In For the first-half case study discussion (conduct a case study of technology implementation at your school or place of business.) For the second-half *Who Learns What From Cases and How?* by Mary Lundeborg; Lawrence Earlbaum Assoc.

Mar 12 & 13

No Tapped In. Post insights in newsgroup for either *Who Learns What From Cases and How?* or *Understanding by Design*.

Mar 19 & 20

Tapped In For the first half, since most students love the McTighe and Wiggins book *Understanding by Design*, I would like us to focus on the section entitled "What is Uncoverage?" Chapter 7 pg 98-114 How does this inform your case study analysis The second half, Case Studies, cont. On that note, include-- Your name & the URL of your case study. The Big question you were investigating The sources of your information. A simple statement describing what you learned. Then, during the session, we can give each person about 5 minutes to share the note and respond to Q&A from classmates.

Mar 26 & 27

Work on project.

Apr 2 & 3

Tapped In and newsgroup discussions of optional book and its contributions to your Case Study process.

Friendly Reminder April 5

Part 1 Case Study Due!

Apr 9 & 10

Tapped In for small groups of 2-3 to discuss reform strategies. Post trannie and summary in NGs by the April 15th

Friendly Reminder April 15

Part 2 Reform Recommendations Due on Case Study

Apr 16 & 17

Tapped In to discuss reform strategies in larger context.

Formative Research: A Methodology for Creating and Improving Design Theories with Reform Strategies for Tapped In, pg 633-654

Current Progress, Historical Perspective, and Some Tasks for the Future of Instructional Theory, pg 653-672